O JULO 1 2004 PER CATENT & TRADE

SEOUENCE LISTING Societe des Produits Nestle S.A. <120> The Lactose operon of Lactobacillus delbrueckii and its use for controlling gene transcription and/or expression in bacterial cells <130> 112843-039 <140> US/10/019,817B <141> 2002-05-13 <150> PCT/EP00/05834 <151> 2000-06-23 <150> 99112471.0 <151> 1999-06-30 <160> 33 <170> PatentIn version 3.2 <210> 1 <211> 1435 <212> DNA <213> Lactobacillus delbrueckii <400> 1 gaattttgtc tggatgctca ggaagcccgc cagctcaagc tggtgattca gccacttttt

60 actgaataat gctacaattg acttaacagc ataaaatttt agtaaaagcg agtgaagaag 120 atggcaacga tcagagaagt ggccaaggca gccggcgtgt cgccagcgac ggtttcccgg 180 240 gtcttgaact atgaccagac cctgtcggtc aatgaggcaa cgcggcagaa gatattcaaa 300 actgctgaag ccatgcacta ccataagagc cggaagacca gaaagagcaa gcaaaagcgc 360 ctggcgatct gcctgtggtg tgaccaagac caggagatca aggacctcta ttactattca atcagaacca gcgcgcaagc agaggccaag aagcagggac ttgaaagcca ggtcatttat 420 480 ccggctgatc ctttgcccga tccagctgct ttaagcggga ttatcatgat tggctaccag 540 cagtattcgc cagaccgctt gaatgaagtc aaaaagtctg gcctgcccct ggtctttgtc gatactgaca ccttaaaatt gggttactgc tcagttgtgg ctgactttgg ccaggccatg 600 caggaggcgc tagaggtctt ctgggggcag ggcagggagc ggatcgccct tttggatggt 660 720 gatttggaca gtaattttga taaaaacaac ttggtcgact tccgcttccg cgattataag 780 aagageeteg eggeeegegg eeagtaegae eeggaettag tetatgttgg aaaetteaet 840 ccgcaatctg gctatgaagc cattaaagaa gctcttaagt ccggctcctt cccgaaagcc 900 ttgattgcgg ctaatgacgc catggctatt ggagcattga aggcctttaa agaagctgga 960 attaaagtcc cagaggacgt cagtctgatt tcttttaatg acacaacggc agcagaattt 1020 gccaacccag ccttgactag cgtacatgta gagacccagc agatgggccg agccagcgtc aaggtcatga aagacctgct ggatgatgat gaagccggca cttacaaggt cactttccca 1080 acaaaactcg tttaccggga atcttgccca aaagcataag ggcatagagc ataataacag 1140 caaagaaata gcttggagat tgattttctc caagctattt ttcgtatata ttatggctgc 1200 1260 attotgttga toattottgg gaatgggaca gottcacgaa cgtggtccag cttgcagato 1320 caggcaatga cccgttcaaa gcccatcccg aagccggagt gcggcacgtg ccgtactttt 1380 ctcagggtcc caggtaccca ggagtagtcg tcccagggtt gaggcccgct tcttcgattt 1435 gcgccttcaa ggtgtcgtag tcagcttcac gttctgatcc gccatgattt cccgt

<210> 2

<211> 332

<212> PRT

<213> Lactobacillus delbrueckii

<400> 2

Met Ala Thr Ile Arg Glu Val Ala Lys Ala Ala Gly Val Ser Pro Ala 1 5 10 15

Thr Val Ser Arg Val Leu Asn Tyr Asp Gln Thr Leu Ser Val Asn Glu 20 25 30

Ala Thr Arg Gln Lys Ile Phe Lys Thr Ala Glu Ala Met His Tyr His $35 \hspace{1cm} 40 \hspace{1cm} 45$

Lys Ser Arg Lys Thr Arg Lys Ser Lys Gln Lys Arg Leu Ala Ile Cys 50 55 60

Leu Trp Cys Asp Gln Asp Gln Glu Ile Lys Asp Leu Tyr Tyr Tyr Ser 65 70 75 80

Ile Arg Thr Ser Ala Gln Ala Glu Ala Lys Lys Gln Gly Leu Glu Ser 85 90 95

Gln Val Ile Tyr Pro Ala Asp Pro Leu Pro Asp Pro Ala Ala Leu Ser 100 105 110

Gly Ile Ile Met Ile Gly Tyr Gln Gln Tyr Ser Pro Asp Asp Leu Asn 115 120 125

Glu Val Lys Lys Ser Gly Leu Pro Leu Val Phe Val Asp Thr Asp Thr 130 135 140

Leu Lys Leu Gly Tyr Cys Ser Val Val Ala Asp Phe Gly Gln Ala Met 145 150 155 160

Gln Glu Ala Leu Glu Val Phe Trp Gly Gln Gly Arg Glu Arg Ile Ala 165 170 175

Leu Leu Asp Gly Asp Leu Asp Ser Asn Phe Asp Lys Asn Asn Leu Val

Asp Phe Arg Phe Arg Asp Tyr Lys Lys Ser Leu Ala Ala Arg Gly Gln 195 200 205

Tyr Asp Pro Asp Leu Val Tyr Val Gly Asn Phe Thr Pro Gln Ser Gly 210 215 220	
Tyr Glu Ala Ile Lys Glu Ala Leu Lys Ser Gly Ser Phe Pro Lys Ala 225 230 235 240	
Leu Ile Ala Ala Asn Asp Ala Met Ala Ile Gly Ala Leu Lys Ala Phe 245 250 255	
Lys Glu Ala Gly Ile Lys Val Pro Glu Asp Val Ser Leu Ile Ser Phe 260 265 270	
Asn Asp Thr Thr Ala Ala Glu Phe Ala Asn Pro Ala Leu Thr Ser Val 275 280 285	
His Val Glu Thr Gln Gln Met Gly Arg Ala Ser Val Lys Val Met Lys 290 295 300	
Asp Leu Leu Asp Asp Glu Ala Gly Thr Tyr Lys Val Thr Phe Pro 305 310 315 320	
Thr Lys Leu Val Tyr Arg Glu Ser Cys Pro Lys Ala 325 330	
<210> 3 <211> 6 <212> DNA <213> Lactobacillus delbrueckii	
<400> 3 tgttta	6
<210> 4 <211> 7 <212> DNA <213> Lactobacillus delbrueckii	
<400> 4 gtaaaca	7
<210> 5 <211> 7 <212> DNA <213> Lactobacillus delbrueckii	
<400> 5 gtaaacg	7

<210>	6	
<211>	17	
<212>	DNA	
<213>	Lactobacillus delbrueckii	
<400>	6	
caccta	ngtga ttcagcc	1
5 5		
<210>		
<211>		
<212>		
<213>	Lactobacillus delbrueckii	
<400>	7	
	acgg ggaagtcggg	2
agooo		
-010-	0	
<210>	·	
<211>		
<212>		
<213>	Lactobacillus delbrueckii	
<400>	8	
	rcgta aacaa	1
-99	,-5	
<210>	Δ	
<211>		
<212>		
<213>	Lactobacillus delbrueckii	
<400>	9	
	ctaa aaatattttg gtaaagcatc ttgatttgtt tagtaaacgg gtctatactg	6
	rtaaa caagttagaa cacctaaagg agaaaatc	9
<210>	10	
<211>	25	
<212>	DNA	
<213>	Lactobacillus delbrueckii	
<400>	10	
		2
atatta	actgc agagtaaaag cgagt	2
<210>		
<211>		
<212>		
<213>	Lactobacillus delbrueckii	
<400>	11	
	aagc ttacagaatg cagcc	2
<210>	12	
<211>		
<212>		
	Lactobacillus delbrueckii	

	<400> 12 atattagaat tcagtgactt aaactgg	27
	<210> 13	
	<211> 27	
	<212> DNA	
•	<213> Lactobacillus delbrueckii	
	<400> 13	
	, atattagaat tcagtacttt gacaccg	27
	<210> 14	
	<211> 27	
	<212> DNA	
	<213> Lactobacillus delbrueckii	
	<400> 14	0.7
	atattagaat tcaagaggct atatcgc	27
	<210> 15	
	<211> 15 <211> 18	
	<211> 18 <212> DNA	
	<213> Lactobacillus delbrueckii	
•		
	<400> 15	
•	ggttaatgcc gccaaagt	18
	210. 16	
	<210> 16	
	<211> 25	
	<212> DNA	
	<213> Lactobacillus delbrueckii	
	<400> 16	
	ataaatctgc agtgggtatg gtggc	25
	<210> 17	
	<211> 22	
	<212> DNA	
	<213> Lactobacillus delbrueckii	
	<400> 17	0.0
	gategttgee acatteacea ee	22
	212	
	<210> 18	
	<211> 21	
	<212> DNA	
	<213> Lactobacillus delbrueckii	
	<400> 18	0.1
	ggtgaatgtg gcaacgatca g	21

<210> <211>	19 25		
<212>	DNA		
<213>	Lactobacillus delbrueckii		
<400>	19		
atatta	ctgc agacagaatg cagcc	25	
<210>	20		
<211>	25		
	DNA		
<213>	Lactobacillus delbrueckii		
<400>	20	٥٢	
ataaato	ctcg agtggtgatt cagcc	25	
<210>	21		
<211>	25		
<211>	DNA		
	Lactobacillus delbrueckii		
1225			
<400>	21		
atattac	ctcg agacagaatg cagcc	25	
<210>	22		
<211>	28		
<212>	DNA		
<213>	Lactobacillus delbrueckii		
	••		
<400>	22	28	
tgttta	ctaa aaatattttg gtaaagca	20	
<210>	23		
<211>	28		
<212>	DNA		
	Lactobacillus delbrueckii		
<400>	23		
tgtttad	ctaa aagtattttg gtaaaaca	28	
<210>	24		
<211>	28		
<212>	DNA		
<213>	Lactobacillus delbrueckii		
-100-	24		
<400>	24 ctaa aagtattttg gtaaaaca	28	
cygogactaa aagtatttog goaaaaca			
<210>	25		
<211>	28		
<212>	DNA		
	Lactobacillus delbrueckii		
<100>	25		

aaattactaa aaatatttta gtaaaaca	28
<210> 26 <211> 29 <212> DNA <213> Lactobacillus delbrueckii	
<400> 26 tcttgatttg tttagtaaac gggtctata	29
<210> 27 <211> 29 <212> DNA <213> Lactobacillus delbrueckii	
<400> 27 tcttgatttg tttagtaaac aagtctata	29
<210> 28 <211> 29 <212> DNA	
<213> Lactobacillus delbrueckii <400> 28 tcttgatttg tttagtaaac aagtctata	29
<210> 29 <211> 29 <212> DNA <213> Lactobacillus delbrueckii	
<400> 29 tcttggttta tttagtaaac aagtctata	29
<210> 30 <211> 107 <212> DNA <213> Lactobacillus delbrueckii	
<400> 30 tttttgttta ctaaaaatat tttggtaaag catcttgatt tgtttagtaa acgggtctat actgtaagcg taaacaagtt agaacaccta aaggagaaaa tcatgaa	60 107
<210> 31 <211> 107 <212> DNA <213> Lactobacillus delbrueckii	
<400> 31 aaaaacaaat gatttttata aaaccatttc gtagaactaa acaaatcatt tgcccagata tgacattcgc atttgttcaa tcttgtggat ttcctctttt agtactt	60 107

<410>	32	
<211>	106	
<212>	DNA	
<213>	Lactobacillus delbrueckii	
<400>	32	
tttaaat	cas baaaaaaa baagaaaaa aaraagaaa aaraagaaaa	60
ctgtaat	ttat aaacaagtta acacacctaa aggagaattt catgaa 1	06
<210>	33	
<211>	106	
<212>	DNA	
<213>	Lactobacillus delbrueckii	
<400>	33	
aaattta	aatg atttttataa aatcattttg tagaaccaaa taaatcattt gttcagatat	60
gacatta	aata tttgttcaat tgtgtggatt tcctcttaaa gtactt 1	.06